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NAS PENSACOLA
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TECHNICAL MEMORANDUM REGARDING WORK PLAN AMENDMENT OPERABLE UNIT 2 (OU2) SITE 11 NAS PENSACOLA FL

8/22/2012

CH2M HILL

TECHNICAL MEMORANDUM

Technical Memorandum Work Plan Amendment Operable Unit 2, Site 11 Naval Air Station Pensacola, Pensacola, Florida

PREPARED FOR: NAS Pensacola Partnering Team

PREPARED BY: AGVIQ-CH2MHILL Constructors, Inc. Joint Venture III

COPIES: Project File

DATE: August 22, 2012

1.0 Introduction

AGVIQ-CH2M HILL Constructors, Inc. Joint Venture III (AGVIQ-CH2M HILL) has been contracted by the Department of the Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE), to implement a remedial action for contaminated soil and groundwater at Operable Unit 2 (OU-2) Naval Air Station (NAS) Pensacola, Pensacola, Florida. This Technical Memorandum Work Plan Amendment (TMWPA) describes procedures for fieldwork to gather information for placement of a soil cover over the footprint of Site 11 in support of a change to the site remedy for OU-2, Site 11, NAS Pensacola agreed to by the NAS Pensacola Partnering Team. The soil cover will be constructed in accordance with the December 1996 U.S. Environmental Protection Agency (EPA) guidance document, "Application of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Municipal Landfill Presumptive Remedy to Military Landfills," and the work will be executed under Remedial Action Contract No. N62470-08-D-1006, Task Order (TO) No. JM15.

The selected remedy described in the Record of Decision (ROD) for OU-2 (TtNUS, 2008) includes contaminated soil excavation and monitored natural attenuation of groundwater. In 2010, AGVIQ-CH2M HILL began to implement the remedy described in the ROD by excavating impacted soil identified as hotspots at Site 11. Asbestos-containing materials (ACM) were encountered during the initial stages of the remedial action, and work was halted pending development of appropriate plans and preparations for handling of the ACM.

Subsequent to these findings, the NAS Pensacola Partnering Team agreed to change the site remedy from hotspot soil removal at seven hotspots to upgrading and maintaining the existing soil cover thickness over the entire footprint at Site 11, during the Partnering Team meeting held in December 2011 and subsequent Partnering Team discussions. The Partnering Team decision was to ensure that all areas within the Site 11 boundary be covered with at least 2 feet of soil cover, and where existing soil cover is found to be less than 2 feet thick over the landfill material contents, additional soil would be placed to bring the soil cover thickness up to 2 feet. After researching available historical information on the disposal areas that Site 11 encompasses, AGVIQ-CH2M HILL has prepared this TMWPA outlining the estimated Site 11 boundary within which the soil cover thickness measurements will be made based on a grid layout.

1.1 Work Plan Addendum Objectives

The objective of this TMWPA is to provide procedures required to collect data for the development of construction planning documents for an engineered soil cover across Site 11. Acquired data will be used to define limits of potential former fill areas and to characterize existing and required future soil cover thickness.

1.2 Site Background

OU-2 is a 68-acre area located on the eastern side of NAS Pensacola, in Pensacola, Escambia County, Florida. The area includes six individual sites: Site 11 - North Chevalier Field Disposal Area, Site 12 – Scrap Bins, Site 25 – Radium Spill Area, Site 26 - Supply Department Outside Storage Area, Site 27 – Radium Dial Shop Sewer, and Site 30 – Complex of Industrial Buildings and Industrial Wastewater Treatment Plant (IWTP) Sewer Line (see **Figures 1 and 2**).

Site 11, located on the northeastern side of OU-2, is a former landfill where industrial and municipal wastes were disposed and burned from the late 1930s to the mid 1940s. The area occupies approximately 20 acres southwest and southeast of an extension of Bayou Grande called the Yacht Basin. Surface elevation at the site is approximately 5 feet above mean sea level (amsl) and the surface slopes gradually eastward to Bayou Grande. Buildings 3627 and 3628 are near the center of the site. Part of the eastern portion of Site 11 may also be covered with wetlands or marsh of Bayou Grande. Building 3445, at the site's southeast corner, is used to store outdated office equipment. Much of Site 11 is covered with vegetation. A fenced area north and south of Building 3445 is used for outside storage of boats, trucks, and heavy equipment. Pat Bellinger Road runs north-south through the center of the site.

Numerous investigations and environmental actions performed at OU-2, beginning with an Initial Site Assessment (ISA) in 1982 and including a Feasibility Study (FS) (Ensafe, 2008b) and Record of Decision (ROD) (TtNUS, 2008) completed in 2008, identified impacted soil and groundwater at OU-2. Contaminants of concern (COCs) in soil were identified based on exceedance of Florida Department of Environmental Protection (FDEP) industrial direct exposure and leachability soil cleanup target levels (SCTLs) (Chapter 62-777, Florida Administrative Code). COCs in groundwater were identified based on exceedance of FDEP groundwater cleanup target levels (GCTLs).

Impacted media at OU-2, Site 11, include soil and groundwater. COCs that exceeded FDEP industrial and leachability SCTLs (Chapter 62-777, Florida Administrative Code) as identified in the ROD (TtNUS, 2008) and the Final Remedial Design for OU2 (TtNUS, 2010) include the following:

- aluminum, polychlorinated biphenyl (PCB) Aroclor-1254, PCB Aroclor-1260, arsenic, benzo(a)pyrene equivalents (BEQs), cadmium, and chromium

COCs that exceeded FDEP GCTLs as identified in the ROD (TtNUS, 2008) include the following:

- benzene, 1,1-dichloroethene (DCE), 1,2-dichloroethane (DCA), cis-1,2-DCE, total 1,2-DCE, dieldrin, 1,1,2,2-tetrachloroethane, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride, naphthalene, aldrin, arsenic, barium, beryllium, cadmium, chromium, and vanadium

Seven excavations were proposed in the Site 11 area; all but one of the proposed excavations are on the edge of or within vegetated areas. **Figure 3** shows the locations of the proposed excavation areas.

On October 1, 2010 during investigation for utility location prior to commencement of excavation activities at Site 11, various materials were observed on the ground surface at areas 11A, 11B, and 11C (**Figure 3**)**,** that were suspected to be ACM. Subsequent testing by AGVIQ-CH2M HILL confirmed that the materials were ACM. Based on the discovery of ACM, the NAS Pensacola Partnering Team agreed during the December 2011 Partnering Team meeting and subsequent Team discussions to change the site remedy from hotspot soil removal at seven hotspots to upgrading the existing soil cover thickness to maintain at least 2 feet of soil cover thickness over the entire footprint at Site 11.

1.3 Project Scope

The field work to be performed includes the following tasks:

- Mobilization and site preparation.
- Site clearing to facilitate the land survey and detailed mapping of the estimated 20-acre Site 11 area.
- A subsurface investigation using hand augers, direct push technology (DPT) (if needed), and test pits to determine existing soil cover thickness and limits of former landfill area(s) over the footprint of the site using 50-foot x 50-foot grids marked and staked by a surveyor.

Data will be used to:

- Prepare and submit surface elevation and isopach mapping of the existing soil cover thickness to assist in preparation of detailed soil cover placement plans over the entire Site 11 footprint.
- Prepare and submit engineered soil cover placement plans, specifications and supporting documentation for additional soil cover placement and site grading.
- Provide detailed engineering plans for erosion and sediment control as part of the final site grading during soil cover placement.
- Prepare a Feasibility Study Amendment (FSA) and Proposed Plan (PP) followed by a ROD Amendment, which will capture the relevant information from the FSA and PP for Navy, regulatory review and public comments.

1.4 Project Communications and Project Personnel

The standard contract compliant communications matrix for AGVIQ-CH2M HILL and the NAVFAC SE organizations is provided in Table 1. The overall responsibility for implementation and enforcement of the TMWPA is assigned to the Project Manager. Designated qualified individuals will assume responsibility for the execution of this TMWPA. These individuals include the Site Superintendent, Project Quality Control (QC) Manager, and Site Safety and Health Officer.

TABLE 1
Communications Matrix
NAS Pensacola, OU-2

AGVIQ-CH2M HILL Position	Navy Direct Report
Sidney Allison, Program Manager	ACO (Ms. Queen Singleton), COTR (Mr. Zane Perry)
Sam Naik, NASP Partnering Team Member Taylor Sword, Task Order Project Manager	RPM (Ms. Patty Marajh-Whittemore), RPM Mr. Greg Campbell

ACO – Administrative Contracting Officer
COTR – Contracting Officer's Technical Representative
FEAD – Facilities Engineering and Acquisition Division
RPM – Remedial Project Manager

Table 2 presents the AGVIQ-CH2M HILL staff that will execute the scope of work defined in this TMWPA.

TABLE 2
Project Personnel Directory
NAS Pensacola, OU-2

Contact	Company
Patty Marajh-Whittemore – RPM Zane Perry - COTR	NAVFAC SE Box 30 Jacksonville, FL 32212-0030 Patty Marajh-Whittemore 904/542-6964
Greg Campbell – Base Environmental Engineer Mike Jordan - FEAD	NAS Pensacola - Public Works Dept. 310 John Tower Road Pensacola, FL 32508 850/452-3131 (Campbell) 850/426-1004 (Jordan)
Mr. Sidney Allison – Program Manager Mike Halil – Program Operations Manager Larry Westphal – Contracts Manager Theresa Rojas – QCM Angelo Liberatore – HSM Nancy Ballantyne - EM	AGVIQ-CH2M HILL 400 Northpark1000 Abernathy Road Suite 1600 Atlanta, GA 30328 770/604-9095
Sam Naik – NASP Partnering Team Member Mr. Taylor Sword – TO Project Manager TBD - Site Superintendent John Towns – Project QC Manager TBD - Site Health and Safety Officer	AGVIQ-CH2M HILL 4610 Westgrove Court Virginia Beach, VA 23455 757/318-9420

QCM – Quality Control Manager
HSM – Health and Safety Manager

2.0 Field Execution Plan

This section describes the tasks associated with completing the proposed scope of work and the means and methods that will be used to implement the project. The following work activities are described in detail:

- Pre-construction planning and project submittals
- Mobilization, site preparation and utility survey
- Survey of site boundary and node point locations
- Soil cover thickness investigation and definition of presence of landfill material at node point locations
- Site restoration (as needed) and demobilization

2.1 Preparatory Work and Project Submittals

AGVIQ-CH2M HILL will prepare for the work by performing administrative, contractual, and logistic activities before mobilizing personnel and equipment to the site. All health and safety, access, supplies and materials, coordination of underground utility surveys, vendor and subcontractor agreements, insurance, and other contractual and administrative issues will be addressed. This TMWPA utilizes the existing Uniform Federal Policy-Sampling and Analysis Plan (UFP-SAP), Accident Prevention Plan (APP), Health and Safety Plan (HASP), Quality Control Plan, Waste Management Plan and Environmental Protection Plan previously prepared and submitted for the Data Gap Investigation and Soil Excavation and Long-Term Monitoring of Groundwater at OU2 (AGVIQ-CH2M HILL, 2010a and b, respectively). Minimal updates to these documents are expected prior to performance of the field work listed above.

The primary update will be to the APP and HASP to incorporate action levels and responses for potential radiological contamination encountered during the performance of this fieldwork. The Navy's Radiological Affairs Support Office (RASO) will be consulted to establish action levels and appropriate field-measuring instruments. AGVIQ-CH2M HILL's qualified Health Physicist will coordinate with the RASO Project Manager for NAS Pensacola to ensure these details are incorporated into the APP and HASP prior to field mobilization. Updates to these plans will be prepared under separate cover. After this TMWPA has been accepted by the Navy, AGVIQ-CH2M HILL will mobilize personnel, equipment, and supplies to the project site to conduct the fieldwork.

2.2 Mobilization, Site Preparation, and Utility Survey

This task includes mobilization of personnel and equipment to the work site and the establishment of temporary facilities, consisting of equipment, supplies, and portable sanitary facilities, office trailer, and storage trailer as needed. In addition, clearing, grubbing, of vegetation at the proposed soil boring locations will be performed. Site controls will be installed or upgraded to control unauthorized access to the site. The various work areas for site activities will be clearly marked and flagged. A pre-construction site walk with AGVIQ-CH2M HILL Site

Manager and SSHO with the NAS Pensacola Base Environmental Engineer and the FEAD will be conducted prior to site mobilization to evaluate and plan for site logistics during the performance of the field work.

Due to the density of the vegetation in the area, transects will be cut through vegetation to reach the node points. Where necessary, trees and vegetation smaller than 6 inches in diameter will be removed to approximately 6 inches above the ground surface. For vegetation larger than 6 inches in diameter, limbs may be pruned, as required, from the ground to 6 feet above the ground to enhance safety of personnel movement. Field crews will use handheld GPS devices (where possible), compass reckoning, and brush-clearing equipment (mechanical and manual) to establish transects. Vegetation removal activities will be coordinated with NAS Pensacola Natural Resources personnel and will be minimized to the best extent possible. Locations adjacent to the work areas will be made available for placement of cut trees, limbs, and vegetation. In the event of vegetation interference by trees and to preserve the natural state as much as possible, certain locations may be relocated for data collection with the relocation noted appropriately.

Before site work begins, each vegetation removal site worker will receive brief training on the vegetation removal procedures from this TMWPA and the HASP. Cutting of trees larger than 6 inches in diameter will be prohibited unless absolutely necessary. Trees will be trimmed or removed on a case-by-case basis and only as required to accomplish the project tasks. If removal is required, the tree will be cut using chain saws or other appropriate handheld equipment. The tree will be sectioned, if necessary, to remove it from the immediate area.

AGVIQ-CH2M HILL will hire a third-party utility location company to verify all detectable utility locations for protection prior to any intrusive activities onsite. The utility location company will utilize drawings of the site to indicate location of any underground utilities detected during the survey. Any utilities found at Site 11 will be flagged, and work options (that is, moving of the planned node point) will be identified to address where utility presence intersects with node points or excavation areas. .

2.3 Site Surveying and Node Point Location

This task includes the use of existing documents to locate and mark up to 350 node points, which are the intersection of the 50 foot by 50 foot grid layout over Site 11. Some nodes will be moved if necessary to accommodate trees larger than 6 inches in diameter, utilities, or other obstructions. The node points will be surveyed for horizontal and vertical definition by a Registered Professional Land Surveyor licensed in the State of Florida, flagged and staked for identification in the field, and a map will be produced with each of the identified locations presented on the map. The surveyed horizontal geographic position and State Plane coordinates will be referenced to permanent or semi-permanent control points existing on the site and will be accurate to ±0.25 meter. Horizontal control of Class One, third order or better, will be established for all new semi-permanent and tertiary control points. The horizontal controls for graphic and non-graphic information are UTM North American Datum 1983.

2.4 Soil Cover Thickness Investigation

This task includes soil cover thickness investigation at each of the surveyed node point locations using either hand augering or DPT, and test pits with the objective of defining soil cover thickness and potential former fill presence. Hand augers will be used as much as possible, and where necessary, a DPT rig will be used to advance borings to a maximum depth of 4 feet below ground surface (bgs). It is assumed that if no waste is encountered at or above the 4 foot depth, then the landfill is not within that location. Also, the field team will not enter into wetlands or marsh to conduct borings. If a node falls within a wetland or marsh, then this point will not be investigated and the data collected from the nearest node will be used for interpretation.

The soil cover should be identified as homogenous, sandy, well-drained soil; thickness will be measured in inches from the top of ground surface to the depth at which the soil appearance shows a significant change or waste materials are encountered. These waste materials should be typical of construction debris, such as bricks, mortar, metals, plastic, etc. Subsurface soil composition will be documented for geologic characteristics, and any observed change in appearance will be logged. Any waste materials encountered will also be thoroughly described and photographed. A photo log with each picture taken will be maintained in the field notebooks.

Hand augers will primarily be used to complete the soil boring process. The persons conducting the borings shall monitor for signs of fill material during advancement of intrusive work (e.g., sudden change in advancement of auger, change in color, texture or density that could indicate the ground has been previously disturbed). Personnel performing hand auguring operations will use a non-conductive pole (such as a fiberglass ground probe) to search ahead to the next sample interval prior to advancing the hand auger. Decontamination of the fiberglass ground probe shall be necessary between boring locations.

A DPT rig will be used to facilitate soil borings where hand augering is difficult or deemed inefficient. Each point, advanced through the subsurface using a DPT rig, will not exceed a depth of 4 feet. During the advancement of the borings, field personnel will monitor for signs of fill material (e.g., sudden change in advancement of rod during drilling or change in color, texture or density during drilling that could indicate the ground has been previously disturbed). Soil cores will be collected using an acetate liner inside a DPT core barrel. When the cores are brought to the surface, the liner will be opened and the core examined for physical characteristics, including matrix type and percentages, moisture content, soil structure, and recovery percentage. This information will be written into the field notebook.

The investigation by the DPT shall be directed by the AGVIQ-CH2M HILL Field Geologist during the investigation to advance the DPT at the desired location to determine soil cover thickness at the desired elevation. The locations will be within 2 feet of the node center and will be marked with paint, wood stake, or flag. Any soil removed from a borehole will be placed back in the borehole/excavation and tamped down for compaction back to the original grade. As a standard of practice, no borings will be completed through asphalt or concrete surface cover.

In addition to the soil cover thickness, a mini-excavator will also be used to complete the soil cover thickness investigation. A trench will be excavated to the appropriate depth with the length of the trench not exceeding five feet long and no more than 2 feet wide. A soil stockpile

will be established beside the excavation on plastic. All soil and waste material (if present) will be returned to the pit and compacted using the excavator bucket. The pit floor and walls of the excavation as well as the excavated soil will be examined for physical characteristics, including matrix type and percentages, moisture content, and soil structure. The Construction Manager will note change in color, texture or density during excavation that could indicate the ground has been previously disturbed.

Following completion of the initial 350 borings/test pits, it will be determined if any additional borings are needed to meet data objectives. If any of the initial borings located on the perimeter of the investigation area do not sufficiently define the areal extent of former fill, then additional borings/test pits away from this initial location may be performed to confirm that the landfill material boundary has been sufficiently delineated.

2.5 Radiological Materials Definition

Because radiologically impacted material has been detected in certain areas of OU-2, AGVIQ-CH2M HILL's health physicist will coordinate with the Navy Radiological Affairs Support Office (RASO) to establish field action levels for worker safety and protection. Work will be halted if these action levels are attained or exceeded during the performance of field work. A field technician trained to measure radiological contamination using appropriate field detection instruments will provide radiological monitoring of soil thickness measurement locations and of soil temporarily displaced at grid node locations during field work.

2.6 Decontamination

Decontamination of personnel and equipment will be performed in accordance with the UFP-SAP and the HASP, included as Appendices B and C of the Data Gap Investigation Work Plan (AGVIQ-CH2M HILL, 2010a). Equipment used for intrusive investigation will be decontaminated before the initial boring is completed and between node points using the following procedure:

1. Clean with potable water and Luminox® or equivalent laboratory grade detergent using a brush, if necessary, to remove particulate matter and surface films.
2. Rinse thoroughly with tap water.
3. Rinse thoroughly with analyte-free water.
4. Allow equipment to air dry completely.

Rinse water will be contained and sampled for waste characterization in accordance with the UFP-SAP. Waste will be managed, transported, and disposed in accordance with the accepted Work Plan (AGVIQ-CH2M HILL, 2010a).

2.7 Waste Management

Any material removed from a borehole or test pit will be placed back in the borehole/excavation and regraded to be under the soil cover at that location. Any solid waste generated during completion of TMWPA activities will be bagged and disposed as municipal

waste.

Rinse water from decontamination of equipment will be sampled in accordance with the UFP-SAP included as an appendix to the Data Gap Investigation Work Plan for OU-2 (AGVIQ-CH2M HILL, 2010a), and transported for disposal at a facility permitted to receive the waste in accordance with the Waste Management Plan (Section 4 of the Data Gap Investigation Work Plan for OU-2 [AGVIQ-CH2M HILL, 2010a]).

2.8 Demobilization

Following completion of all site activities, all materials, equipment, and personnel will be demobilized from the site.

2.9 Project Schedule

The field work is expected to be performed from early August to November 2012. Work days are planned to be 10 hours per day, 5 days per week. This schedule will be tracked and updated during the project to effectively represent progress and any resulting modifications.

2.10 Documentation and Reporting

Data developed during the field work will be tabulated and digitized for mapping as required to complete engineering plans that will be used for construction of a cap as necessary to complete the soil cover. Elevation and location data generated in the field will be used to create soil elevation thickness (i.e., isopach) maps that extrapolate between node points indicating where the cover is insufficient and areas that require additional soil coverage. Construction drawing s will also be developed based on the elevation and spatial data to complete soil capping plans and specifications prior to construction implementation.

3.0 References

AGVIQ-CH2M HILL, 2010a. Data Gap Investigation Work Plan, Remedial Action for Operable Unit 2 (Sites 11, 12, 25, 26, 27, and 30), Naval Air Station Pensacola, Pensacola, Florida. Prepared for Naval Facilities Engineering Command Southeast, Jacksonville, Florida. July.

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Figures

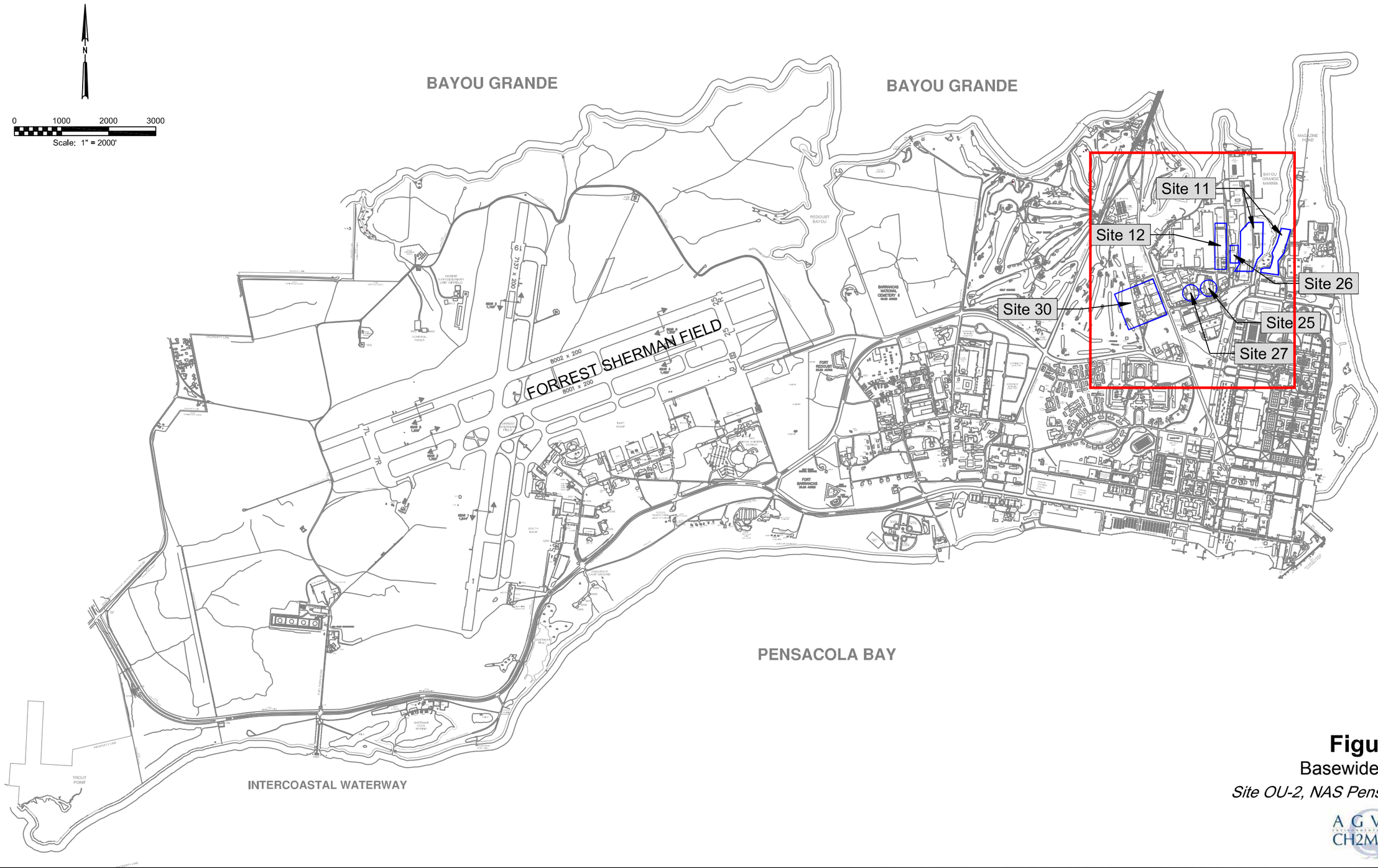

Figure 1
Basewide Map
Site OU-2, NAS Pensacola

AGVIQ CH2M HILL

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28-May-2009

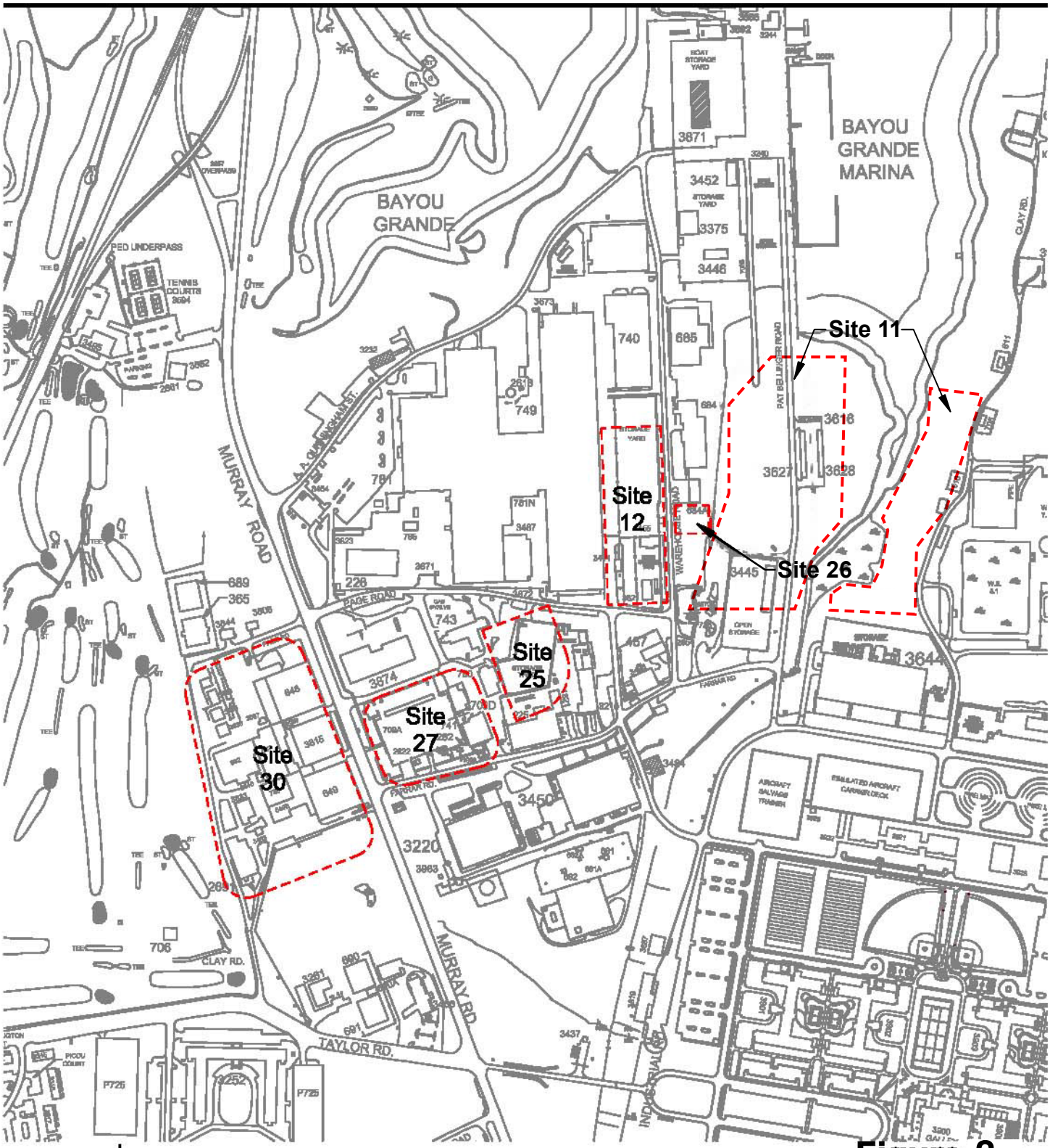

Figure 2
Site Locations
Site OU-2, NAS Pensacola

AGVIQ CH2M HILL

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28-May-2009

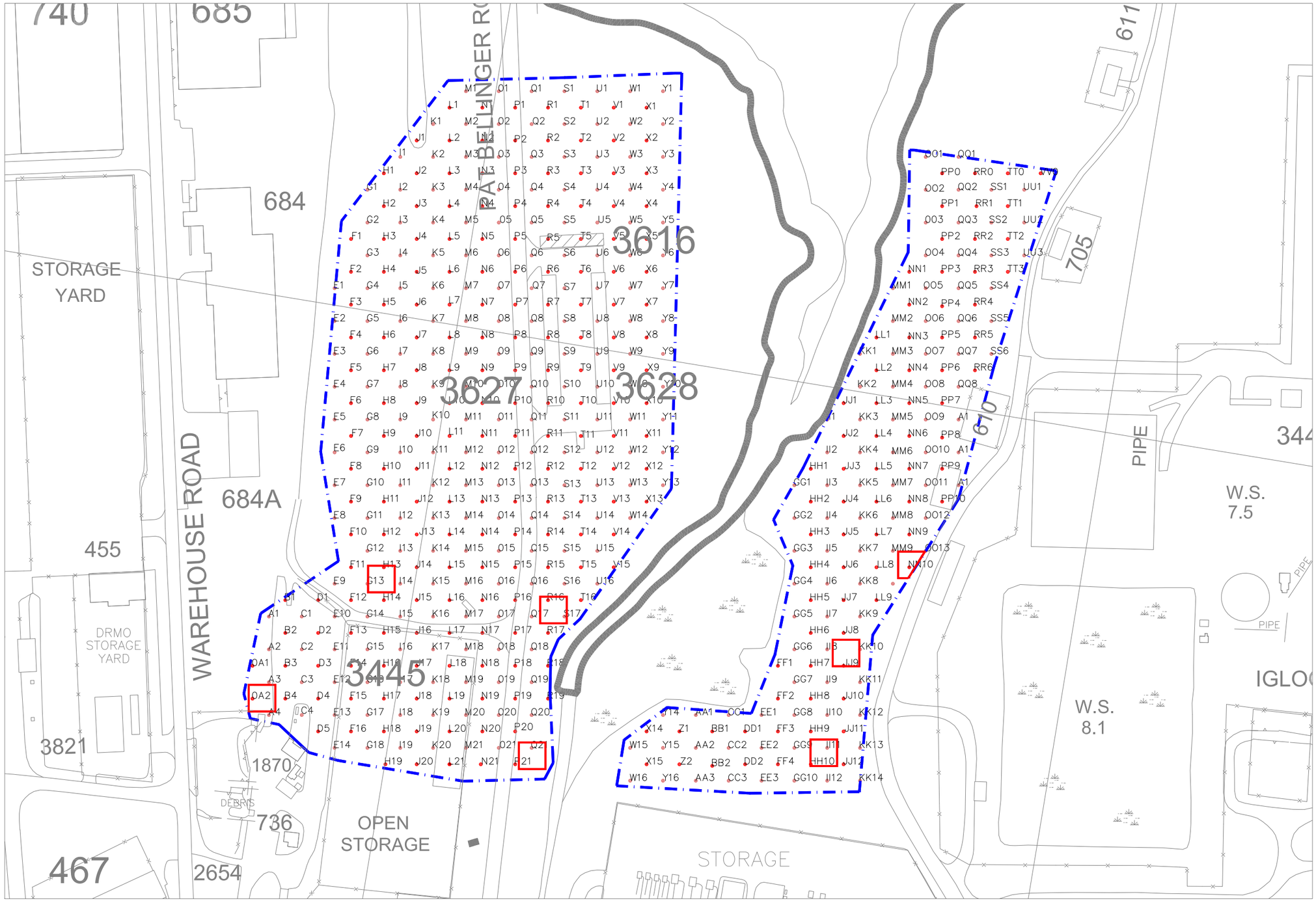

Figure 3
Node Point Locations, Site 11
Site OU-2, NAS Pensacola

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